# NEW SPECIES OF SPIONIDÆ *(ANNELIDA, POLYCHAETA)* FROM SOUTHERN CALIFORNIA[1]

*By* DONALD J. REISH
Department of Biology and the Allan Hancock
Foundation, University of Southern California

While studying the ecology of the polychætous annelids in Newport Bay, California, the author encountered one new species and one new subspecies belonging to Family Spionidæ. These specimens were collected from the bottom of the bay with size one Hayward orange-peel bucket (Reish, 1955). The author is indebted to Mr. Richard Linsley for the use of his boat, and to Dr. J. Laurens Barnard and Dr. Keith H. Woodwick for assistance in collecting the material.

### **Spiophanes pigmentata** n. sp.
Plate 6, Figures 1 to 4

This new species of *Spiophanes* was taken from many different stations in Newport Bay in 1951 and 1954. The holotype, of about 80 setigerous segments, is 15 mm. in length and 1.5 mm. in width.

ANTERIOR END.—The prostomium (Pl. 6, fig. 1) is longer than broad with its ridge extending to the posterior limits of the first setigerous segment. At the anterior margin the prostomium is broadly rounded with no indication of lateral extensions or frontal horns. A large brown pigmented area is located about a third of the way back on the prostomium. The palpi arise from the lateral posterior margins of the prostomium; they are thick at their base and extend to segment 15. Two pairs of eyes, in trapezoidal arrangement, are located in the posterior half of the prostomium. The anterior pair is set farther apart than the posterior pair. There is no median antenna.

The first segment has slender capillary setæ in both the notopodium and the neuropodium. There is a brown pigmented area at the dorsal and ventral margin of the neuropodium of this segment.

The dorsal cirrus is well developed beginning with the second segment. It is filiform in shape and is directed back along the dorsum.

---

[1] Contribution number 236 from the Allan Hancock Foundation, University of Southern California. Present address: Dept. of Biological Sciences, Long Beach State College.

SETÆ.—The hooded hooks (Pl. 6, fig. 2) first appear at segment 12 and are present to the posterior end. They are quinquedentate with two larger and three smaller teeth. The smaller teeth are in triangular arrangement with the single tooth at the apex of the hook. These setæ are accompanied with capillary ones.

The posterior parapodia (Pl. 6, fig. 3) bear well-developed dorsal cirri, notopodial and neuropodial lobes. The capillary setæ in the notopodium project beyond the dorsal cirrus. Both the hooded hooks and capillary setæ of the neuropodium extend beyond its lobe.

The pygidium (Pl. 6, fig. 4) terminates in a pair of dorsal, thick, long papillæ and a pair of ventral, thick, short papillæ.

PIGMENTATION.—This species is strongly pigmented; the pigmentation persisting in the preserved condition. Typically the pigmented areas occur on the prostomium and segment one as described above (Pl. 6, fig. 1). However, some variation was found to exist in smaller specimens. A pigmented patch was located on either side of the prostomium on the peristomium instead of the single pigmented area on the prostomium. The pigmentation of the dorsal margin of the neuropodium extends to segments four to six in the larger specimens and to segments 10 to 12 in the smaller ones. A dorso-median patch of brown begins with the second setigerous segment and extends to segments 6 to 12 in the different specimens. In addition some of the smaller specimens may have pigmentation just lateral to the dorso-median patch; it may appear as a solid pigment or as a ring.

*Spiophanes pigmentata* lives in a fine membrane tube which is composed of a small particles and a few sand grains. The tube consists of a tan region and a rust region.

DISCUSSION.—*Spiophanes pigmentata* differs from the other known species of the genus by the possession of:
(1) unique pigmentation pattern in anterior segments,
(2) quinquedentate hooded hooks which first appear at segment 12, (3) posterior parapodial lobes with extending dorsal cirri, notopodial and neuropodial lobes, and setæ, and (4) pygidium with a pair of longer, dorsal papillæ and a pair of shorter, ventral papillæ.

Four other species of the genus have been reported from the eastern Pacific. They are characterized as follows:

*Spiophanes missioniensis Hartman* (1941)

(1) lateral extension to prostomium
(2) a curved spine in the first neuropodium
(3) tridentate hooded hooks appearing in the neuropodium of segment 15

(4) pygidium with two dorsal cirri and one ventral cirrus
(5) reported from only southern California

*Spiophanes fimbriata* Moore (1923)
(1) rounded prostomium
(2) median antenna
(3) lateral interparapodial pouches after segment 15
(4) hooded hooks appearing in the neuropodium of segment 15
(5) reported from only California

*Spiophanes bombyx* (Claparède). (Berkeley and Berkeley, 1952)
(1) frontal horns
(2) bidentate hooded hooks appearing in the neuropodium of segment 15
(3) a curved spine in the first neuropodium
(4) pygidium with a dorsal cleft and two ventral cirri
(5) cosmopolitan in distribution

*Spiophanes cirrata* Sars (Berkeley and Berkeley, 1952)
(1) lateral extension to prostomium
(2) median antenna
(3) tridentate naked hooks appearing in the neuropodium of segment 15
(4) pygidium with 6 to 12 cirri, some of which may be dichotomously branched
(5) reported from cold waters of the Northern Hemisphere

TYPE MATERIALS.—The holotype, 11 paratypes, and additional specimens have been deposited in the annelid collections of the Allan Hancock Foundation, University of Southern California.

TYPE LOCALITY.—Newport Bay, California, from substrate composed of mud, muddy sand, or sand and shell fragments.

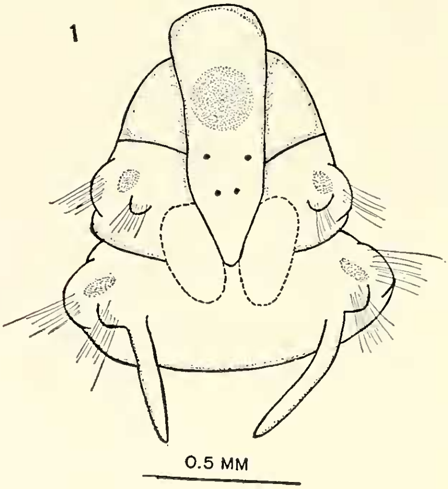
### **Prionospio heterobranchia newportensis** n. subsp.
Plate 6, Figure 5

A total of 188 specimens from 39 stations were collected from the benthos of Newport Bay, California. The holotype of 82 setigerous segments measures 20 mm. in length and 1.0 mm. in width. Other complete specimens range from 15 to 25 mm. in length.

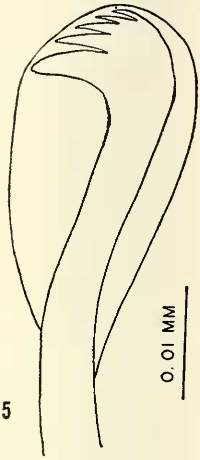
*Anterior end.*—The prostomium is rounded in front and bears a pair of smaller eyes anterior to a pair of larger ones. The caruncle extends to the posterior limits of the second setigerous segment. There is no median antenna.

The first setigerous segment is abranchiate. Branchiæ are present from setigerous segment two to six. The first, fourth, and fifth pairs are plumose, and the second and third pairs are filiform.

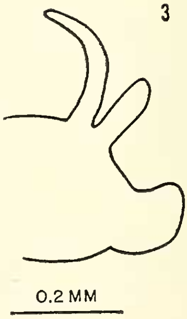
1



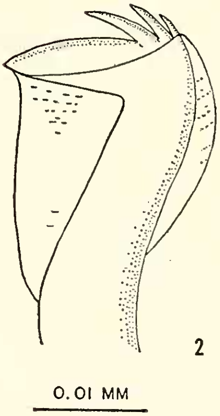
5



3



2



4

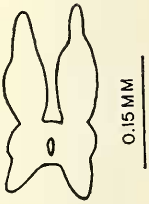


PLATE 6

*Spiophanes pigmentata* n. sp. Fig. 1 to 4

Fig. 1. Anterior end, dorsal view. Dotted lines indicate origin of palpi.

Fig.2. Hooded hook from anterior neuropodium.

Fig. 3. Posterior parapodium showing extending dorsal cirrus, notopodial and neuropodial lobes.

Fig. 4. Pygidium in end view showing the anus, the longer, dorsal papillae, and shorter, ventral papillae.

*Prionospio heterobranchia newportensis* n. subsp. Fig. 5

Fig.5. Hooded hook from anterior neuropodium.

SETÆ.—The notopodia and neuropodia of the first 13 setigerous segments bear only two simple capillary setæ. Hooded hooks (Pl. 6, fig. 5) are first present in the neuropodium of segment 14. The hooks are composed of one larger and four smaller teeth which are surrounded by a hood. Similar hooded hooks begin in the notopodium from setigerous segment 42 to 55. Capillary setæ accompany the hooks in both the notopodium and neuropodium throughout the length of the animal.

POSTERIOR END.—The pygidium is characterized by a single, longer, dorso-median cirrus and two shorter, lateral cirri.

DISCUSSION.— The stem species *Prionospio heterobranchia* Moore (1907), and the two subspecies, *P. h. texana* Hartman (1951) and *P. h. newportensis* n. subsp., are the only species of the genus characterized by having five pairs of branchiæ. These three may be separated as follows:

*Prionospio heterobranchia* Moore (1907)
Eyes: One pair
Appearance of hooks: Neuropodial segment 15
Notopodial segment 40
Distribution: Massachusetts
*Prionospio heterobranchia texana* Hartman (1951)
Eyes: Two pairs
Appearance of hooks: Neuropodial segment 14
Appearance of hooks: Neuropodial segment 14
Notopodial segments 42 to55
Distribution: Southern California

TYPE MATERIAL.—The holotype and 22 paratypes have been deposited in the polychæte collections of the Allan Hancock Foundation, University of Southern California.

TYPE LOCALITY.—Newport Bay, California, from shallow depths.

## LITERATURE CITED

Berkeley, Edith, and Cyril Berkeley
1952. Canadian Pacific Fauna, Polychaeta Sedentaria, No. 9b (2). Fish. Res. Board Canada, Toronto. pp. 1-139.

Hartman, Olga
1941. Some contributions to the biology and life history of Spionidae from California. Allan Hancock Pacific Exped. vol. 7, pp. 289-324.
1951. The littoral marine annelids of the Gulf of Mexico. Inst. Mar. Sci. vol. 2, pp. 7-124.

Moore, J. Percy
1907. Descriptions of new species of spioniform annelids. Acad. Nat. Sci. Phila., Proc. vol. 59, pp. 195-207.
1923. The polychaetous annelids dredged by the U. S. S. *Albatross* off the coast of southern California in 1904. Spionidae to Sabellaridae. Ibid., vol. 75, pp. 179-259.

Reish, Donald J.
1955. The relation of polychaetous annelids to harbor pollution. Public Health Repts. vol. 70, pp. 1168-1174.

* * *

# THE NUMBER OF SPECIES OF GAMMARIDEAN AMPHIPODA (CRUSTACEA)*

By J. Laurens Barnard

No precise figures on the number of species of gammaridean Amphipoda have been published, to the knowledge of the writer. The Gammaridea comprise the largest suborder of the Amphipoda and are familiar inhabitants of the marine intertidal and benthos, streams and lakes, and sandy beaches (sandhoppers). The group has been catalogued in my recent "Index to the Families, Genera and Species of Gammaridean Amphipoda" (Barnard 1958, Hancock Foundation Occ. Pap. 19) which is the first resume since Stebbing's treatise (1906, Das Tierreich 21).

The following table illustrates the composition of the suborder in comparison to that of 50 years ago.

| | Stebbing 1906 | Barnard 1958 (through 1956) |
|---|---|---|
| Families | 42 | 57 |
| Genera | 330 | 605 |
| Species | 1242 | 3146 |

The following compilation provides data on the distribution of the Gammaridea according to habitat, through 1956.

| | |
|---|---|
| Marine and brackish species | 2376 |
| Stream and lake species | 400 |
| Lake Baikal species | 232 |
| Terrestrial species | 88 |
| Subterranean species | 50 |

---

*Contribution No. 226 from the Allan Hancock Foundation, University of Southern California